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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/047,100

01/14/2002

Thomas W. Miller

PD-00W022

5732

23915

7590

04/06/2005

PATENT DOCKET ADMINISTRATION
RAYTHEON SYSTEMS COMPANY
P.O. BOX 902 (E1/E150)
BLDG E1 M S E150
EL SEGUNDO, CA 90245-0902

EXAMINER

FILE, ERIN M

ART UNIT

PAPER NUMBER

2634

DATE MAILED: 04/06/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/047,100

Applicant(s)

THOMAS W. MILLER

Examiner

Erin M. File

Art Unit

2634

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 January 2002.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-5, 8-10, 14, 16-19, 22, 23, 25 and 28 is/are rejected.
- 7) ☒ Claim(s) 6, 7, 11-13, 15, 20, 21, 24, 26 and 27 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 14 January 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/23/2003.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application (PTO-152)
- ☐ Other: _____.

DETAILED ACTION

Drawings

1. The drawings are objected to because in figure 2, the drawing includes textual descriptions for blocks Apply Weights and Compute Weights lack numerical references. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The abstract of the disclosure is objected to because of the use of the abbreviation FFT (line 3) and GPS (line 8). Correct terminology such as Fast Fourier Transform (FFT) and Global Positioning System (GPS) should instead be used. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

- A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5, 8-10, 14, 16-19, 22, 23, 25, and 28 are rejected under 35 U.S.C. 102(b) as being anticipated by Dent.

Claims 1, 2, 9, 14, 16, 23, 28, Dent discloses, an array of antennas 1 to N (fig. 5, input to 80) which are input to a fast fourier transform to a create a plurality of frequency subbands (80) which are then normalized by an amplitude shaping unit (81) . According the abstract of the applicant's disclosure, normalization involves adjusting the amplitude of one or more of the frequency subbands to remove and bias distortion, therefore amplitude shaping unit can be used as a normalizing unit. Dent further discloses a

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search phase as part of the adaptive beamforming process (col. 12, lines 6-29). The search phase is an adaptive process which includes performing a two-dimensional array transform in order to detect arrays which should not be used in future beamforming detection processes.

Claim 3, 17, inherit the limitations of Claims 2, 16 respectively. Dent further discloses the use of radio frequency transmitter and receivers in his invention (col. 7, lines 1-6).

Claim 4, 18, inherit the limitations of Claims 3, 17 respectively. Dent discloses analog to digital converters (fig. 2, 316) as part of the sampling parameters of the array antenna illustrated in figure 2.

Claim 8, 22, inherit the limitations of Claims 2, 16 respectively. Further Dent discloses the phasing unit (fig. 5, 82) may be an inverse Fourier transform in the numerical domain (col. 14, lines 47-51).

Claim 5, 19, inherit the limitations of Claims 4, 18 respectively. Dent further discloses the formation of sample blocks (col. 6, lines 13-15).

Claim 10, 25, inherit the limitations of Claims 9, 23 respectively. Dent further discloses the application of weighting vectors to each frequency subband through beam forming matrices (fig. 4, 70).

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4. Claims 6, 7, 11-13, 15, 20, 21, 24, 26, 27, are objected to as dependent upon rejected claims, but would be allowable if rewritten in independent form.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Erin M. File whose telephone number is (571)272-6040.

The examiner can normally be reached on M-F 9:30-6:00.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stephen Chin can be reached on (571)272-3056. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Erin M. File

EMF

3.31.2005


STEPHEN CHIN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800